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THE ELEMENTARY SCHOOL JOURNAL

CONTINUING "THE ELEMENTARY SCHOOL TEACHER"

NOVEMBER 1916

EDUCATIONAL NEWS AND EDITORIAL COMMENT

The survey of schools of Cleveland, Ohio, was arranged for and financed by a local organization known as the Cleveland Foundation. It was this foundation which arranged for the weekly luncheons for interested citizens during the "Follow-up" progress of the survey. Now the Foundation is continuing its campaign of publicity by the publication of the *Education Survey Bulletin*. The first number of this bulletin appeared on September 30; others are promised whenever occasion arises. Copies may be had by addressing the Survey Committee of the Cleveland Foundation, Room 404, 2025 East Ninth Street, Cleveland.

The first number of the *Bulletin* gives the following summary of facts about the survey:

Time: 15 months, April, 1915-June, 1916.

Basis: 1,000,000 tests of pupils' ability and progress; records and reports for fifteen years; 1,553 visits to classrooms.

Findings: 25 booklets on public education in Cleveland; 428 subjects treated; 306 descriptions; 57 commendations; 65 criticisms.

Results: 32 recommendations already approved by Board of Education.

Cost: \$50,000.

Staff: 17 specialists and 5 assistants have been employed in the Survey in addition to 8 editorial, clerical, and drafting assistants, making a staff of 30 in all. Of the 22 specialists and assistants, 20 have had teaching experience. The two who have not had such experience have not been employed in school

visitation. Of the 22 specialists and assistants, 12 have held positions as principals of elementary, high, normal, or industrial schools, and 10 have held positions as superintendents or assistant superintendents of school systems.

The notes on Cleveland schools which fill up the first two pages of the *Bulletin* are of such general interest that they are quoted in full:

More seats needed.—Cleveland was short 7,500 seats or 186 regular rooms for its school children at the time of the Survey. Each year 5,000 new seats or 125 new rooms are needed. This would mean \$1,500,000 annually for new buildings, if the present plan of using school space continues. About \$1,000,000 has been spent for new buildings each of the last few years. So school seats have been getting farther and farther behind the number of pupils. The school officials estimate they are 10,000 seats short.

New buildings are imperative.

How many?

Twelve \$200,000 buildings according to present practice or two and a half millions' worth.

No plan can remove the need for buildings in new, rapidly growing sections, or in districts where old buildings need replacing. These requirements must be met.

Economical relief.—Present and proposed buildings can be made to accommodate 15 to 35 per cent more pupils than is being done. The platoon plan recommended by the Education Survey will do this.

The educational advantages of the plan, however, outweigh the financial. It adapts the famous Gary plan to a city with schools already built and to the best standards of teaching. Superintendent S. O. Hartwell put the system into operation at Kalamazoo with remarkable results. Laggard pupils have become almost unknown.

Trial given.—Kennard School in Cleveland has been trying out the platoon plan. The principal and teachers have done their best to make it go. Many have said they would never go back to the old plan of their own will. They explain the number of failures after a three months' trial, by the many new or substitute teachers put in the school for trying the new plan, by the packing into the school two months before the plan started of all the pupils whom the school could care for when the new scheme should be put into effect, and by the necessity of failing nearly a whole class which should have been failed the year before.

The pupils showed marked improvement at the end of eight months.

The platoon plan must be extended gradually, as an increasing number of the teaching staff learn how to operate it.

What the platoon plan is.—All rooms in a school building are classified into two groups, "regular" and "special." The regular rooms are used for teaching reading, spelling, arithmetic, language, and history; the special rooms for

literature, writing, geography, music, physical training, manual training, and domestic science. The rooms are assigned to the "regular" or "special" groups in such a way that both groups accommodate equal numbers of pupils. This does not necessarily mean an equal number of regular and special rooms, for some special rooms like gymnasiums for physical training, or auditoriums for music and literature, can accommodate as many pupils as two or more regular classrooms. For example, a school building has 14 classrooms and a manual-training shop, a domestic science kitchen, an auditorium, and a gymnasium. These 18 rooms are divided into 10 "regulars" and eight "specials," but each group of rooms holds the same number of pupils, that is, 10 ordinary classes, making 20 in all.

The pupils also are divided into two shifts or platoons, A and B, of equal numbers. The platoons are divided into classes of the usual size. Each platoon spends half its time in regular rooms, and half its time in special rooms. Platoon A is in the regular rooms while Platoon B is in the special rooms, e.g., for half of each morning and afternoon session. Then they change places so that both platoons get the same amount of the subjects taught in regular and special rooms.

For instance, each of the several classes of Platoon A remain in a single regular room learning reading, spelling, arithmetic from a single teacher for half a morning session, while each class of Platoon B has been in three different special rooms being taught perhaps manual training, music, and writing by three different teachers. In the second half of a session, the platoons change places, each doing what the other did the first half.

Saving effected.—Such a school as described might serve 20 classes under the platoon plan while it held only 14 under the plan usual in Cleveland. For the usual plan fills up the 14 standard classrooms and then sends the pupils one room at a time for special work to gymnasium, manual training, etc., leaving the classroom vacant in the meantime. When no classroom is vacant these special rooms of expensive size and equipment lie idle. The platoon plan uses all the rooms all the time, and keeps public investment as constantly employed as private capital insists on being.

Many modifications of the plan described can be made. The lowest grades may be exempted from its operation. Some subjects may be taught in special rooms in one system and in regular rooms in another. But the principles can be applied to any school with modern equipment.

Adjustments required.—Special equipment has to be provided to hold the books and wraps of two classes for each regular room. In the special rooms several sized chairs must be used to fit the children of different ages. A good modern school can be adapted to the plan for \$1,000. Practically the same amount of time as at present can be given to each subject. The only change in program is that some subjects, such as writing, geography, literature, are taught by special teachers instead of by the regular grade teachers. The cost of teaching per pupil is not increased, as there is only one teacher to each class

of standard size. Teachers with special aptitudes must be put in charge of special rooms, as they do specialists' work.

Advantages.—This platoon plan will relieve the regular teachers from the increasing number of "extras" like drawing and music, which have been the burden of the training and teaching of many women who would excel in the regular studies. The pupils gain the advantage of learning special subjects from those expert in them. A careful study of a teaching corps will discover many with such aptitudes and special training will supply more. So the problem of the overburdened course of study and teacher can be solved to the immense educational advantage of the pupils. Investment in school buildings can be made to yield 15 to 35 per cent larger return in housing children, which means a saving of from \$22,000 to \$55,000 on each new building. This saving or increased return in half the existing buildings can be secured for Cleveland by competent administration and would put to use all the time the 2,000 classrooms, 50 auditoriums, 50 gymnasiums, and 35 shops, a \$10,000,000 investment.

There came to hand some time ago a pamphlet inquiring for candidates who might be considered for positions in a private school. The pamphlet sets forth at some length what **What Parents Want** a group of parents think a school for their children should be. The statement is interesting reading as an indication that the demand for a liberal form of education is defining itself in the minds of parents as well as teachers. Indeed, some critics of the schools would say that parents know what they want even better than do the teachers.

The pamphlet is too long to quote in full. Some significant extracts may be reproduced.

AN OUTLINE OF A PROPOSED BOYS' SCHOOL FOR WHICH A HEADMASTER OR TEACHER IS BEING SOUGHT

A number of men and women of Dayton wish to furnish educational facilities for their children in a manner which would be too great an innovation to be worked out at present in the public schools. The undertaking, until it becomes established, will provide only for six to twelve boys, from ten to seventeen years old. These are normal boys, whose parents have more than ordinary interest in their education. If the work should develop suggestions of value to our local public schools, one of our hopes would be realized. . . .

Not being familiar with present-day theory and practice of education, we must depend on the man or men whom we secure to be qualified, and to direct us in our efforts. But we have some fairly definite opinions, the following statement of which will indicate our point of view.

Technic.—Certain studies, including reading, writing, arithmetic, spelling, and English composition, have for their chief aim the development of the technic of living. When we realize clearly that this is their object, we see how these and similar studies may be presented so that the technic acquired is that of actual life. The following example, one of many possibilities, indicates how a knowledge of these subjects may be gained, together with other knowledge of general use.

Among acquirements which reduce the embarrassments and inefficiency of everyday material life is an experimental knowledge of commercial habits, rules, and methods; of the art of being solvent, of appraising accurately one's possessions, and of making correct measurement and judgment of material values. Therefore, one phase of the school might be its organization as an industrial plant where its activities would be studied; where income and outgo, and the cost and value of the boys' manufactures or other production would be analyzed; where the significance of budgets and of auditing methods might be acquired; and where the relation of industry to moral standards might be developed. The teaching of common school subjects can be interwoven with all these interests. The legal incorporation and operation of a company by the boys for handling their business affairs might be of educational value. Manual training will have added interest if the products of the boys' work have definite commercial or artistic value.

By such methods, proficiency in elementary and high-school subjects, as well as manual training, to some extent may be acquired coincidently with a knowledge of the usual contacts of everyday life, whether they be industrial, domestic, scientific, or cultural. . . .

Appreciation of life.—Any education is vitally at fault which does not develop a habit of enjoyment of the finer resources of life. The companionship of the teacher should result in opening eyes and minds to the phenomena of natural science—to life-processes and habits of plants and animals, to the data of geology, of physics, and of astronomy; and to the appeal of good literature, poetry, history, and of the various forms of art. We admire Alfred Russell Wallace, who wrote on his eightieth birthday that the charm of life and of nature was as fresh to him as in his boyhood, and that his sense of wonder was not impaired.

The meaning of life.—Education is not complete if its aim is so to engross the attention of men and women, either in industrial, professional, or social life, or in the pursuit and enjoyment of culture, that they will not have time to ask themselves the question, "What is it all about?" . . .

Manners.—The habitual expression of considerateness and good will and the elimination of social friction, through the mediums of courtesy, good manners, and good form should be acquired as essentials of a liberal education. School influence should supplement, or at least support, that of the home.

Training in independence.—Tempering and stabilizing of character should be aimed at, so that a boy will choose to stand on his own resources, will

initiate and complete undertakings without leaning on others, and will react effectively to stress or hardship.

Adventure.—The spirit of daring and of adventure, so nearly universal in youth, commonly is thwarted at every turn in a boy's life. Yet this is one of his highest gifts. When it is gone his greatest promise is past. The aim of the teacher should be to direct this spirit, making it count for the boy's development. . . .

Relation of teacher to boy.—The ideal relation of teacher to boy would seem to be that of older friend and companion, though in acknowledged authority. Classical examples are the relation of Socrates to his young friends, and of Jesus to his twelve followers. President Garfield said his idea of a university was a log with his former teacher, Mark Hopkins, on one end, and a boy on the other.

One of our number attended an unusual village school. The master enforced little formal discipline. The study schedule was flexible, being sometimes interrupted while the entire school united in a venture of common interest. When phonographs were invented the school made one that would work, and became thoroughly familiar with the elementary principles of sound production. An aquarium made possible acquaintance with the life-histories of several animals. The building of school furniture gave every boy and girl a working knowledge of common tools. Reading together developed a taste for good literature. The member of our group referred to, except for learning at home to read and write, in less than four years under this man covered the work of the lower eight grades, and was prepared for high school.

These cases indicate roughly what we are thinking of. Bearing in mind always the need for maintaining progress approximately equal to that of our graded schools, the aims should be, not first of all to impart knowledge, but to open the boys' eyes and minds; to arouse interest, aspiration, and determination; to develop accuracy of observation and of judgment. . . .

Individual instruction.—We are inclined to believe that best results may be secured when the boys receive individual instruction, rather than when they are taught *en masse*; that each boy should progress in each subject at whatever varying rate is normally possible to him, being thoroughly prepared at each step before he takes the next. The benefits of team work would still be secured, but in ways which do not require a retarding of the quicker and a crowding of the slower boys, in order to maintain a uniform rate of progress. . . .

The junior high school has often been organized in large school systems as a means of relieving a crowded high school or as a **Junior High School in a Small System** device for consolidating small seventh and eighth grades. Small school systems have been slow to organize the intermediate school because of the apparent difficulty of providing the new courses required.

The following clipping from the *Hancock County Courier* gives a full statement of the reasons accepted in New Cumberland, West Virginia, for organizing a junior high school in a small system:

For several years school people have been trying to devise a plan which will hold the pupils of the upper grades longer in school, give them work more adapted to their needs, and give them improved methods of instruction. Some schools attempted to do this by departmentalizing the work of the seventh and eighth grades; that is, the work is so organized that one teacher should teach, say, all the history in these two grades, another all the mathematics, etc. This plan seems good, for one teacher cannot be expected to teach all subjects equally well, and this plan gives her a chance to specialize along some particular line. This plan becomes impractical in the small school where there are but the two upper grades, that is, the seventh and eighth, for we should have but two teachers and consequently the work would have to be divided between the two, and no teacher would have a chance to specialize. The junior high school, or combination of the seventh and eighth grades with the high school, includes all the good points of the above plan and will (1) recognize individual difference and group pupils according to interests and ability; (2) departmental teaching will be introduced and pupils will be promoted by subject rather than by grades; (3) there will be opportunity for pupils to explore several fields to find where they are fit; (4) an earlier introduction of subjects now confined to the high school will be possible; (5) it makes easier the transition into the high school; (6) it will decrease the elimination; (7) it will furnish opportunities for reforms in instruction because it is not bound by tradition; (8) it will improve the lower grades and raise the standards of the high school.

In our own school last year one teacher was obliged to teach both seventh and eighth grades; this year the pupils in these two grades are taught by four different teachers, the recitation periods are the same length as in the high school, the same methods of instruction are used, and the pupils are given the opportunity to take different work. Later on these pupils will be given the opportunity to take commercial work if they care to.

The nearest junior high school outside of our city is in Pittsburgh, Pa. They declare it an unqualified success.

We now have enrolled in both junior and senior high schools about 125 pupils.

The following are the courses of study given:

JUNIOR HIGH SCHOOL, GENERAL COURSE

SEVENTH YEAR

English (reading and language)	Civics
Arithmetic	Writing
Physiology	Spelling
American History and Community	

EIGHTH YEAR

English (grammar, literature, and reading)	Spelling
Arithmetic (some algebra given)	Latin, I
General Science	Commercial Arithmetic
History and Community	Commercial Law and Geography
Civics	Bookkeeping
Writing	Typewriting

NOTE.—Last five subjects are elective.

NINTH YEAR

Latin, I	Commercial Arithmetic
Algebra, I	Commercial Geography and Law
English, I	Bookkeeping
General Biology	Typewriting

NOTE.—Last five subjects are elective.

Mr. Wilford E. Talbert, the director of reference and research of the school system of Oakland, California, carried on recently, **Tabulating School Records** with the co-operation of Mr. J. J. Anderson of the Tabulating Service Bureau of San Francisco, a test of the cost and efficiency of the mechanical method of tabulating school reports as compared with the "old method" of having the work done by principals in their spare time. Mr. Talbert has prepared a very interesting report giving an account of the test. The report is well worth securing and reading in full. The following extracts will serve to show the character of the test:

In order that the Service Bureau might be enabled to get all of the original data direct from the teachers, each teacher was requested to copy all of the data from all of the other reports given to her principal on a special mimeographed sheet. Every item on every sheet was later checked by the office to be sure that no errors in copying remained uncorrected. School names, teachers' names, etc., were then given code numbers so that nothing but numerical data remained on the sheets.

What the Service Bureau did with it.—The first operation in the tabulating machine system is "punching the cards." This consists in punching on uniform-sized cards the information from the teachers' reports. The cards are then compared with the original reports to insure their accuracy. Next, the sorting machine sorts the cards for any desired information they may contain, such as "school," "grade," "size of class," etc. And, finally, the tabulator consolidates the desired information. Thus, if enrolment by grades is wanted the sorter puts all the grades into their appropriate groups and the tabulator

shows how many pupils there are in each grade, the total for all grades, and the number of cards that went through the machine. The machine operator sits at a typewriter and types the totals as they appear in the tabulator. An adding device on the typewriter shows the same grand total as the tabulator at the end of the report, thereby proving that no errors have been made either in tabulating or in typing.

The tabulating machine system.—The electrical tabulating machine was first used by the United States Census Bureau in 1893, but it was not until several years afterward that it was finally adapted for use in commercial and other establishments with a smaller amount of statistical work to be done. Within recent years, however, the machines have been used in practically every kind of business and for practically every statistical purpose. Many business establishments now use the machine method even in place of the old conventional form of bookkeeping. Some of its advantages will appear in the following report of our own experiment.

Time taken to complete reports.—If reports are to be used for administrative purposes they must be put into usable form while there is still opportunity to profit by the information they contain. A monthly report should enable the administration to remedy conditions during the succeeding month.

In our experiment we noted that many of the principals find difficulty in completing their reports within the week allowed by the rules of the Board, and that numerous errors in copying and calculation which are discovered later make it necessary either to defer the monthly report for the greater part of four weeks or else to give the Board and Superintendent a report which will almost immediately be subject to correction. In either case there is considerable delay in securing accurate information.

The tabulating machine system, on the other hand, tabulated more than twice as much information as the principals, and submitted, in just two and one-half days from the time they received the data from the teachers, a type-written report in which it was mechanically impossible for errors, either in copying or in calculation, to exist.

Correctness of reports.—If it is important that reports be completed in a reasonable time, it is even more important that they be reliable. In fact, a great deal might be said concerning the merits of accuracy in school reporting. Through an unwritten law of professional ethics it has become customary for bookkeepers to spend even days of time trying to correct an error of a few cents in order that their books may be in perfect balance. But for other forms of accounting no such law exists. It is customary in ordinary school reports to check carefully the attendance column because it represents money, but to take all other reports at their face value. An extreme case of the results of thus taking reports at their face value was discovered last summer when one particular school reported as on hand over 200 more copies of a particular textbook than were sent to it in the first place, notwithstanding the fact that the records showed that a large percentage of the books charged to it had been lost.

It is hard to reconcile such extreme accuracy in financial accounting with the almost extreme laxness that pervades school accounting of other things representing money value. And if there is inconsistency here, there is even more inconsistency when we consider the neglect of accurate accounting for non-promotion, eliminations from school, etc., where the lives of future citizens are vitally concerned.

The errors which creep into school reports constitute no reflection upon the intelligence of school officers. They are the type of errors commonly found in the statistical work of persons whose work is not clerical in nature and such as even professionals are bound to make from time to time. In fact, wherever the human element enters into statistical work there are apt to be such errors as: (1) mistakes in calculation; (2) mistakes in copying; (3) entering the proper figures in the wrong column.

By the present system of collecting statistics there are numerous possibilities for error because of the necessity for copying data so many times, and also because of the large number of different persons upon whose work the final results depend. Besides, the conditions under which school officers labor are not conducive to accurate statistical work even if they had enough clerical duties to make them expert in the handling of figures.

The result of the old system has been that, particularly at busy seasons, a large percentage of the principal's reports have had to be corrected or, at times, even to be completely made over. In spite of the fact that most of these errors are small, they nevertheless occasion a great deal of confusion—necessitating telephone calls, interruption of school work, changes in the office records, and the revision of statements already given to the public. As an example of the confusion resulting from correcting errors, it may be stated that a single change in the attendance column (on which money is apportioned) necessitates 16 changes in the office records besides the changes necessary in statements which have previously been given out by the office.

At the end of the year the confusion is even greater. The law requires each principal to make an annual report for his school. But the sum of these annual reports by schools seldom gives the same results as the annual report by months for the city as a whole. This is due both to errors in the principals' summaries and to changes which the schools have made which have not been reported to the office. The result is two different annual reports for the city, both of which are wrong.

Of course the tabulating machine system will not eliminate all errors. It will still be dependent upon the correctness of the original data given by the teachers, and there will still be a small chance for error in punching the cards. In the latter case, however, the work will be done by a regular clerk in ideal circumstances and there will be only one person to make errors. All mistakes due to computation or to copying (by far the bulk of the errors in principals' reports) will be absolutely eliminated by the machine; also the possibilities of error in the numerous copyings which will be saved in the superintendent's

office. The reason for this is that a given fact by the machine system is entered once and once only, and that all computations are purely mechanical. Even the typing of the final results is mechanically checked for accuracy. In the entire report rendered us by the Tabulating Service Company we found but one error, and that was due to the illegible writing of a teacher.

COSTS

Since the only possibility for error in the tabulating machine process consists in punching the cards, the Tabulating Service Bureau usually prefers that patrons punch their own cards. This requires buying a key-punch which costs \$50. Anyone can operate it like an adding machine, and the average operator soon learns to punch as high as 2,500 cards per day. We use less than 1,100 cards per month. The cards themselves cost \$1.00 per 1,000 printed and delivered.

Once the cards are punched, the Tabulating Service Company offers to tabulate any information we want for \$25 per day, or they offer us a flat rate of \$50 per month for two days' work per month with occasional special reports free as we may require them.

The machines which the Service Company uses can be rented and operated by ourselves, the rental being from \$65 to \$75 per month, depending upon the type of the machine. We should then be able to use them all the time in all departments or even to do work for other departments of the city government at a reasonable rate.